AMENDMENTS TO THE CLAIMS

Please **CANCEL** claims 3 and 8 without prejudice or disclaimer of the subject matter therein.

Please **AMEND** claims 1-2, 4-7, and 9-17 as shown below; claims 13-16 have been renumbered to claims 14-17 by the Examiner in accordance with 37 CFR 1.126 and are marked to represent the renumbering below.

The following is a complete list of all claims in this application.

What is claimed is:

1. (Amended) An abrasive carbon foam produced by ~~the~~ controlled foaming ~~of~~ a blend of materials, comprising:

   ~~A)~~ ~~from~~ about 90 to about 99% by volume of a particulate coal exhibiting a free swell index ranging from ~~of between~~ about 3.5 ~~and~~ to about 5.0 ~~and of a small diameter~~; and

   ~~B)~~ ~~from~~ about 1 to about 10% by volume of a carbide precursor powder capable of reacting with carbon during carbonation and graphitization.

2. (Amended) The abrasive carbon foam produced by controlled foaming a blend of materials of claim 1, wherein said particulate coal exhibits a free swell index ranging from ~~of between~~ about 3.75 ~~and~~ to about 4.5.

3. (Cancelled)

4. (Amended) The abrasive carbon foam produced by controlled foaming a blend of materials of claim ~~3~~2, wherein said carbide precursor powder includes at least at least one of ~~is selected from the group consisting of:~~ tungsten, silicon and titanium.

5. (Amended) The abrasive carbon foam produced by controlled foaming a blend of materials of claim ~~3~~2, wherein said carbide precursor powder ~~is of a~~ has particle ~~size~~ sizes below about 100 microns.

6. (Amended) The abrasive carbon foam produced by controlled foaming a blend of materials of claim ~~3~~2, wherein the abrasive carbon foam is ~~which is~~ a semi-crystalline, largely isotropic, porous coal-based product having a density ranging from ~~of between~~ about 0.1 ~~and~~ to about 0.8 ~~g/cm3~~ g/cm^3.

7. (Amended) A method for producing an abrasive carbon foam, comprising:

~~A)~~ comminuting coal exhibiting a free swell index ranging from ~~of between~~ about 3.5 ~~and~~ to about 5.0 ~~to a small particle size~~ to form a particulate coal;

~~B)~~ blending said particulate coal with ~~from~~ about 1 to about 10% by volume of a carbide precursor powder to form a reactive blend; and

~~C)~~ controllably heating said reactive blend in a mold under a non-oxidizing atmosphere to a first temperature ranging ~~of between~~ about 300° C and about 600° C and soaking at this temperature for a period ranging from about ~~of from~~

~~about~~ 10 minutes to about 12 hours to form ~~a green foam blend~~ an open celled material;

~~D)~~ carbonizing said ~~green foam~~ open celled material ~~blend to form a carbonized foam~~ by heating to a second temperature ranging from ~~of between~~ about 600°C to ~~and~~ about 1600°C in an inert atmosphere and holding at said second temperature for a period ranging from ~~of from~~ about 1 to about 3 hours to form a carbonized foam; and

~~E)~~ graphitizing said carbonized foam by heating said carbonized foam to a third temperature ranging from ~~of between~~ about 1700°C ~~and~~ to about 3000°C in an inert atmosphere and holding at said third temperature for a period of less than about one hour to form said abrasive carbon foam.

8. (Cancelled)

9. (Amended) The method for producing an abrasive carbon foam of claim ~~8~~7, wherein said carbide precursor powder ~~is~~ selected from the group consisting of~~:~~ tungsten, silicon and titanium.

10. (Amended) The method for producing an abrasive carbon foam of claim ~~8~~7, wherein said carbon precursor powder ~~is of~~ has ~~a~~ particle ~~size~~ sizes below about 100 microns.

11. (Amended) The method for producing an abrasive carbon foam of claim 7, wherein said particulate coal exhibits a free swell index ranging from ~~of between~~ about 3.75 ~~and~~ to about 4.5.

12. (Amended) An abrasive carbon foam manufactured by a process, comprising:

~~A)~~ comminuting coal exhibiting a free swell index ranging from ~~of between~~ about 3.5 ~~and~~ to about 5.0 to ~~a small particle size to~~ form a particulate coal;

~~B)~~ blending said particulate coal with from about 1 to about 10% by volume of a carbide precursor to form a reactive blend;

~~C)~~ heating said reactive blend in a mold under a non-oxidizing atmosphere to a first temperature ranging from ~~of between~~ about 300° C ~~and~~ to about 600° C at a heat up rate ranging from about 1° C to about 20° C and ~~soaking~~ holding at ~~this~~ the first temperature for a period ranging from about ~~of from about~~ 10 minutes to about 12 hours to form a green foam blend;

controllably cooling said green foam blend to a second temperature below about 100° C;

~~D)~~ carbonizing said green foam blend to form a carbonized foam by heating to a third temperature ranging from ~~of between~~ about 600°C to ~~and~~ about 1600°C in an inert atmosphere and holding at said third temperature for a period ranging from ~~of from~~ about 1 hour to about 3 hours to form a carbonized foam; and

~~E)~~ graphitizing said carbonized foam by heating said carbonized foam to a fourth temperature ranging from ~~of between~~ about 1700° C to ~~and~~ about 3000° C

in an inert atmosphere and holding at said fourth temperature for a period of less than about one hour to form said abrasive carbon foam.

13. (Amended) The abrasive carbon abrasive foam manufactured by a process of claim 12, wherein said particulate coal exhibits a free swell index ranging from ~~of~~ ~~between~~ about 3.75 ~~and~~ to about 4.5.

14. (Original duplicate claim 13, renumbered 14, Amended) The abrasive carbon foam manufactured by a process of claim 12, wherein said carbide precursor comprises:

a member selected from the group consisting of materials capable of reacting with carbon to form carbides ~~under carbon~~ during calcining and graphitizing ~~conditions~~.

15. (Original claim 14, renumbered 15, Amended) The abrasive carbon foam manufactured by a process of claim ~~13~~14, wherein said carbide precursor is selected from the group consisting of~~:~~ tungsten, silicon and titanium.

16. (Original claim 15, renumbered 16, Amended) The abrasive carbon foam manufactured by a process of claim 12, wherein said carbon precursor is a powder ~~is of~~ having a particle size below about 100 microns.

17. (Original claim 16, renumbered 17, Amended) The abrasive carbon foam manufactured by a process of claim 12, ~~which is~~ wherein the abrasive carbon

foam is a semi-crystalline, largely isotropic, porous coal-based product having a density ranging from ~~of between~~ about 0.1 ~~and~~ to about 0.8 ~~g/cm3~~ g/cm^3.